ABSTRACT OF THE DISCLOSURE

A base station for compensating a fixed route delay between a base station and a mobile station of a CDMA mobile communication system and an operation method thereof are disclosed. This base station includes a clock signal generation unit for receiving a 10MHz, TOD and 1 PPS signal from a GPS receiving unit and generating a 1st even second clock signal in synchronization with the 1 PPS and a 2nd even second clock signal which is obtained by delaying the 1st even second clock signal by a maximum bidirectional propagation delay time between a base station and a relay unit, a first signal processing unit for receiving the 1st even second clock signal from the clock signal generation unit and modulating a forward link channel from the base station to a mobile station in synchronization with the 1st even second clock signal, and a second signal processing unit for receiving the 2nd even second clock signal from the clock signal generation unit and demodulating a backward link channel from the mobile station to the base station in synchronization with the 2nd even second clock signal, for thereby compensating a decrease of a cell communication radius due to a fixed route delay factor on a communication route between a base station and a mobile station.